



Review article

The New Imperative: Reducing Adolescent-Related Violence by Building Resilient Adolescents

Elizabeth Ward, M.B.B.S., M.Sc. Epi.^{a,*}, and Deanna Ashley, M.B.B.S., D.M. Paed., Dip. Public Health^b^a *Institute of Criminal Justice and Security, University of the West Indies, Kingston, Jamaica*^b *School of Continuing Studies and Research, University of the West Indies, Kingston, Jamaica**Article history:* Received January 22, 2012; Accepted June 8, 2012*Keywords:* Adolescence; Violence prevention; Resiliency; Neurodevelopment

A B S T R A C T

Involvement in violence is affected by a variety of risk factors and timing, duration, number of risks, and intensity of risk factors. The earlier the exposure to risk starts, the longer the exposure continues, the number of risks one is exposed to, and intensity of the risk factors experienced are all important. A child who is severely beaten, sexually abused, or both; one who grows up witnessing intimate partner or family violence; one who attends a failing school or is not involved in structured after-school activities; or one who lives in a violent neighborhood is at increased risk of becoming involved in violent behavior. The nature of the violence is worsened by the impact of shifting family structure and other risk factors such as alcohol and drugs. Adolescents who are exposed to positive parenting and supportive individuals, receive relevant education, are literate, possess life skills, and participate in structured, supervised activities become empowered young people who can resist violence.

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I would there were no age between ten and three-and-twenty, or that youth would sleep out the rest; for there is nothing in the between but getting wenches with child, wronging the anciently, stealing, fighting.

—William Shakespeare (1564–1616)

Adolescence is a time for risk taking, exploration, searching, growth, and development. Whereas most adolescents pass through this stage unscathed, the growing epidemic of violence is destroying our youth and jeopardizing our future. It is common to see our adolescents involved in aggressive, antisocial behavior, suicidal ideation, and violence. The statistics have caught up with the overdose of violent images in the newspapers and on the nightly news. In a 50-country study undertaken between 2000 and 2004, Viner et al [1] reported that mortality in people age 15–24 years was higher than that in children age 1–4 years. Among young men, mortality is two to three times higher than for younger boys. The report states that violence and suicide have

become a major cause of death in this group: Suicide makes up a quarter to a third of mortality in exposed young men age 10–24 years.

Obviously, not all adolescents become involved in violence. However, we know that a number of factors are associated with violence involvement. Adolescents who experience physical and sexual abuse, lack self-esteem and purpose, are illiterate, are not engaged, and are unskilled or unemployed, who grow up in dysfunctional families, experience community violence and social disintegration, have unequal opportunity, and are exposed to poor-quality education are more likely to become involved in youth violence [2–5].

A variety of risk factors and timing, duration, number of risks, and intensity of risk factors affect involvement in violence. The earlier the exposure to risk starts, the longer the exposure continues, the number of risks one is exposed to, and intensity of the risk factors experienced are all important. A child who is severely beaten, sexually abused, or both; one who grows up witnessing intimate partner or family violence; one who attends a failing school or is not involved in structured after-school activities, or one who lives in a violent neighborhood is at

* Address correspondence to: Elizabeth Ward, M.B.B.S., M.Sc. Epi., 13 Gibraltar Camp Way, University of the West Indies, Mona, Kingston 7, Jamaica.

E-mail address: vpajamaica@gmail.com (E. Ward).

increased risk of becoming involved in violent behavior. The nature of the violence is worsened by the impact of shifting family structure and other risk factors such as alcohol and drug abuse [6,7].

Resiliency factors protect children and adolescents growing up in environments with similar risk exposures and from similar socioeconomic backgrounds. Adolescents who are exposed to positive parenting and supportive individuals, receive relevant education, are literate, possess life skills, and participate in structured, supervised activities become empowered young people who can resist violence [7,8].

Burden

Most (90%) of adolescent-related violence and homicides occur in low- and middle-income countries. In many African and low- and middle-income countries of the Americas, homicide is the leading cause of death among people 15–29 years of age. Almost twice as many violent deaths occur in the male population [9].

Recent events in Vancouver and London have shown how violent behavior can sweep through neighborhoods, fuelled by both television and social media. Hemenway referred to this as the positive feedback loop. Huesemann proposed the contagion theory to explain this spread of violence. Spear [10] and Protenza [11] provided possible etiological bases and brain processes for violent behavior. Incomplete frontal lobe circuits and differing functioning dopamine pathways lend support to interventions to prevent adolescent-related violence. This understanding serves to refine those interventions and provide biological underpinnings that would support taking some of these evidence-based programs to scale.

Biology

Spear [10] and Protenza [11] outlined high levels of subcortical activity, with its reward-seeking propensity during the adolescent period. Concurrent with this developmental process is the slower maturation of the prefrontal cortex, an area of the brain important in advanced cognitive functions including attention regulation and response inhibition. This results in adolescents being more susceptible to excitatory and less responsive to aversive stimuli than either younger children or adults. These developmental changes support the often-observed behavior of enhanced risk taking and sensation seeking seen during adolescence. The behavioral brakes are either slow to respond or do so intermittently, and violence is a predictable outcome.

Environment

The added impact of environmental stimuli is also explained by the neurodevelopmental processes noted above and described in more detail in Spear's [10] paper. Adolescents are "less harm avoidant" and less responsive to negative consequences of behavior. This provides evidence that punishment-based approaches to violence reduction (Scared Straight, Drug Abuse Resistant Education [DARE], boot camps, and military-type interventions [12,13]) have limited impact. Periods of stress-arousing situations reduce activity in the prefrontal cortex and increase activity in subcortical regions, delaying the development of rational adolescents and increasing their engagement in risky behavior. Spear differentiated between

cold cognition—decision making that is rational—and hot cognition theory, which is heavily influenced by the social context of the moment. For youth, much of the violence that they experience occurs in the heat of the moment, when emotions override rationality. Such processes might also help explain youth susceptibility to epidemic violence.

Reducing Exposure to Harm

Whereas the period of fastest brain maturation occurs in early life, brain synaptic pruning continues through adolescence into adulthood, with a rewiring of brain connections into "adult pattern." This progresses from the posterior to anterior portions of the brain. As a consequence, the prefrontal cortex—the area of the brain responsible for impulse control and emotional regulation—is among the last areas of the brain to develop. Relying on rational interventions alone would hold little promise. Rather, interventions that strengthen families through home visiting and programs building life and parenting skills could be scaled up to have a greater impact on the population. Examples include the Triple P Program and other parent training and support interventions.

We also need to address issues of access to harmful substances. Spear's paper [10] highlighted the need to reduce opportunities for adolescent harm and provide protective environments. The adolescent brain is sensitive to environmental experiences and exposures, which make a case for insulating young people—to the extent possible—from things that can predispose them to violence: namely, weapons and drugs. Both taxation policies and age of purchase restrictions may need to be reexamined in light of the emerging evidence. So too, the data suggest that programs that engage young people, keep them in school, and improve educational outcomes have a major role in reducing involvement in violence. The provision of mentorship programs that are sustained and provided by an older, connected adult have yielded positive results. Structured, supervised after-school activities also reinforce nonviolent and productive behavior [12–14]. These programs need to be further explored and their population impact measured.

Spear's [10] also highlighted the roles that context and stress have in influencing adolescent behavior. Stressful, exciting, and emotionally arousing circumstances not only increase responsiveness in subcortical regions to socioemotional and rewarding stimuli, but also attenuate activity in regions of the frontal cortex that are critical for logical thinking and cognitive control, thereby impeding rational or cold cognition. Graduated licenses are an example of a staged approach to minimizing risk among adolescents. We need to learn from that example and explore other graduated approaches to harm reduction.

Community-level interventions that shift norms within a geographic local are another context-based approach. Examples of these include "Diadema" in Brazil and Bogota, Colombia; "Greater Browns Town" in Jamaica, and "Communities That Care" in the United States (Presented at the 2011 Geneva Declaration 2nd Ministerial Review Conference) [15–21].

Community-level interventions aimed at lowering the emotional temperature of a situation appear to hold promise, as well. These interventions build on the understanding that a lot of violence is triggered by emotional reactivity. These programs show that methods to reverse the contagion actually have an effect. Examples include the Peace Management Initiative in

Jamaica and the Interrupter initiative of the Chicago Ceasefire program.

Implications

Science has reaffirmed Blum's three programmatic areas needed for violence prevention (see introductory paper) [22] where:

- Family connectedness is a consistent element.
- Educational enrichment is present for young people failing in schools.
- Economic opportunities are available that create options for young people.

As we think of the next steps, we must be aware that in many communities, drugs, violence, and weapons represent a major part of the economic infrastructure. Therefore, although the programs discussed above are evidence based, they require resources to have an impact on the population. These programmatic activities will need to be supported by data collection systems that will measure the population impact of adolescent-related violence prevention programs. It is imperative to implement these programs if cities in the developing world and industrialized world alike are to become incubators for growth and knowledge, rather than centers of violence and continued poverty.

The need to strengthen basic science research to understand the “why” of adolescence violence remains; meanwhile, let us use current knowledge to guide our response. The “silos” of service delivery that persist must be broken down as we plan violence prevention and social service programs with a major role in the prevention arena identified by criminal justice and police services. We need to allow the creative energy of adolescents to be at the centre of these programs, thereby allowing them to give back and to be part of the solution.

No country, no city, no community is immune. But neither are we powerless against violence. ... Violence is preventable.
—N. Mandela

Violence is not an inevitable part of the human condition to which the world must be resigned but rather it is a preventable condition.

—World Health Assembly Resolution 49.25

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